and Glendale); Monterey, Orange, San Bernardino, San Luis Obispo; San Joaquin local health district.

Private Laboratories—Dr. Mona Bettin, Los Angeles; Drs. Brem, Zeiler and Hammack, Los Angeles; Drs. Butka and Pratt; Dr. John Chain, Eureka; Drs. Frey and MacKnight, Los Angeles; Drs. Holliger and Sheldon, Stockton; Frank Kolos, San Francisco; Dr. Marian Lippman, San Francisco; Fred I. Lackenbach (Lippman), San Francisco; Ruth Lane, Bakersfield; Mabel Little, Oakland; Dr. Bessie Martell, Santa Ana; Drs. Oliver and Knapp, San Francisco; Drs. O'Reilly and Wheeler, San Francisco; Dr. Rawson Pickard, San Diego; W. W. Reich, Ph.D., Oakland and Berkeley; Dr. E. H. Ruediger, Hollywood; Dr. Gustav Ruediger, Pasadena; Dr. J. R. Snyder, Sacramento; Edward I. Sugarman, San Francisco; Dr. A. H. Thompson, San Diego; Dr. E. Victors, San Francisco; Western Laboratories (Dr. G. Moore), Oakland; Ella C. Weston, Santa Barbara.

Hospitals and Clinics—Highland Hospital, Oakland; Santa Maria Hospital, Santa Maria; Alameda County Health Center, Oakland; Children's Hospital, San Francisco; Glendale Sanitarium, Glendale; Johnston Wickett Clinic, Anaheim; Mills Memorial Hospital, San Mateo; Moore-White Clinic, Los Angeles; Rideout Hospital, Marysville; San Joaquin General Hospital, French Camp; St. Luke's Hospital, San Francisco; Santa Barbara Cottage Hospital, Santa Barbara; Santa Rosa Clinic, Santa Rosa; Stanford University Hospital, San Francisco; Sutter Hospital, Sacramento; White Memorial Hospital, Los Angeles; Woodland Clinic, Woodland; Santa Barbara Clinic, Santa Barbara; Southern Pacific General Hospital, San Francisco; Peralta Hospital, Oakland; French Hospital, San Francisco.

When the certification of laboratories was first begun, approval was offered to a few representative hospitals and private laboratories in addition to the governmental ones. Since then no effort has been made to expand the list, but applications for approval have been received and acted upon.

There are still excellent laboratories, principally among the hospitals that have not applied for inspection.

Both the certification of laboratories and the licensing of technicians is limited at present to public health laboratory fields; that is, to the bacteriology and serology of the communicable diseases.

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BOTANICAL SURVEY OF SAN FRANCISCO

By ALBERT H. ROWE, M. D.
Oakland

THIS survey of San Francisco has been prepared in order to facilitate the diagnosis and treatment of patients living in that city, who suffer with hay fever, asthma, or eczema, due to pollen sensitization. The survey is based on data obtained by two botanists, Miss Weisendanger in 1926 and Mrs. L. Dempster in 1927, and on my own personal observations during the last ten years. The data as tabulated indicate relative amounts of the various species in separate districts of the city, and the months of pollination. I am indebted especially to Professor Hall, who

GROUP 1.—*Trees*

SCIENTIFIC NAME	COMMON NAME	DURATION OF POLLINATION
Betulaceae		
Betula alba	Birch	February and March
Cypressaceae	(Cypress Family)	
Cypresses marcocarpa	Monterey Cypress	
Fagaceae	(Oak Family)	
Castanea chrysophylla	Giant Chinquapin	June, July and August
Fagus sylvatica	Beech	March and April
Quercus densiflora	Tanbark Oak	March and April
Quercus agrifolia	Coast Live Oak	March and April
Juglandaceae		
Juglans californica	Cal. Black Walnut	April and May
Juglans nigra	Eastern Black Walnut	April and May
Juglans regia	English Walnut	April and May
Leguminosae	(Pea Family)	
Acacia spp.		January, February and March
Meliaceae		
Melia azedarach	Umbrella Tree	
Myrtaceae		
Eucalyptus spp.	Gum Tree	May and June
Oleaceae		
Fraxinus ornus	Flowering Ash	May and June
Fraxinus oregona	Oregon Ash	January and February
Platanaceae	(Plane Tree Family)	
Platanus orientalis	Oriental Sycamore	March and April
Pinaceae	(Pine Family)	
Pinus Radiata	Monterey Pine	Year round
Salicaceae		
Populus (several spp.)	Popular Cottonwood	February and March
Tiliaceae		
Tilia americana	Linden	July
Ulmaceae	(Elm Family)	
Ulmus spp.	Elm	January and February

Note.—The most of the above trees are found in considerable number in various parts of Golden Gate Park. Acacia, Oak, Birch and Sycamore predominate. The Pine and various species of Cypress are also very common and are particularly abundant in the Presidio and around Twin Peaks. In other parts of the city, particularly in the western sections, shade trees are occasionally found.

GROUP 2.—*Grasses*

GRAMINEAE Scientific Name	(GRASS FAMILY) Common Name	DURATION OF POLLINATION											Distribution by Districts. Numbers indicate relative amounts in each district. 1—Rare; 2—Scarce; 3—Common; 4—Abundant							
		January	February	March	April	May	June	July	August	September	October	November	December	Lake Merced	East of Park	North of Park	South of Park	City Proper	South S. F.	Southeast Section	Golden Gate Park
Festuceae	(Fescue Tribe)																				
Briza minor	Annual Quaking-Grass				1	1								2	1		1		1	1	2
Bromus carinatus	California Brome				1	1	1	1						2	2	2	2	1	2	1	2
Bromus hordeaceus	Soft Cheat				1	1	1							2	3	3	2		3	2	
Bromus maritimus	Seaside Brome				1	1	1							3		3	3				2
Bromus rigidus	Ripgut				1	1	1							3	4	3	3	3	3	3	
Bromus rubens	Red Brome				1	1	1									1	1		1		
Bromus unioloides	Rescue					1	1														2
Cortaderia argentea	Pampas (cultivated)						1	1													3
Dactylis glomerata	Orchard				1	1	1							3	3	3	2			1	3
Distichlis spicata	Saltgrass					1	1	1								1			2		1
Festuca microstachys					1	1								2	2	2	1		2	1	2
Festuca myuros	Rat's-Tail Fescue				1	1								3	2	3	3	2	3	2	2
Melica torreyana	Torrey Melicgrass				1	1	1							1							1
Melica imperfecta	Slender Melicgrass				1	1	1							1							1
Poa annua	Annual Bluegrass	1	1	1	1	1	1	1	1	1	1		1	3	3	3	3		3	3	4
Poa pratensis	Kentucky Bluegrass				1	1	1	1	1					1	1	2	1		2	3	4
Hordeae	(Barley Tribe)																				
Elymus glaucus	Western Rye					1	1	1						2	2	2					
Hordeum murinum	Farmer's Fox Tail				1	1	1							3	3	3	3	3	3	3	3
Hordeum sativum	Cultivated Barley				1	1	1							1			1				
Lolium perenne	Perennial or English Rye					1	1	1	1	1				3	4	3	3	3	4	4	4
Aveneae	(Oak Tribe)																				
Aira caryophyllea					1	1	1							1	1						2
Avena Fatua	Wild Oat				1	1	1							3	3	3	2	3	3	3	3
Notholcus Lanatus	Velvet					1	1	1	1					3	3	3	2		3	3	4
Agrostideae	(Timothy Tribe)																				
Agrostis verticillata	Bent					1	1	1						2	1	2	1	1			2
Agrostis spp.						1	1	1						2	3						3
Ammophila arenaria	Beach Grass					1	1	1						3					1		2
Lagurus ovatus	Hare's Tail					1	1	1							1	1					
Polypogon monspeliensis	Beard Grass					1	1							3	1	1	2	1	2		2
Stipa pulchra	Needle grass					1	1							2	1	1	1		2	1	2
Chloridaea	(Grama Tribe)				1	1	1														
Cynodon dactylon	Bermuda						1	1	1	1	1	1	1		1	2	2	1	1	1	2
Phalarideae	(Canary Grass Tribe)																				
Phalaris minor	Mediterranean Canary				1	1	1							2	1	1	1		1	1	2
Phalaris paradoxica	Gnawed Canary				1	1	1							1	1	1			1	1	2
Paniceae	(Millet Tribe)																				
Echinochloa Crusgalli var. Zelayensis	Water Grass					1	1							1							1
Tripsaceae	(Corn Tribe)																				
Zea Mays	Indian corn					1	1	1						1							1

has checked over my data in regard to frequency of distribution and duration of pollination of the various species.

The flora of San Francisco differs in certain ways from that of the east shore of San Francisco Bay, on which Oakland, Berkeley, and Alameda are situated. In my study of the latter region I reported the first all-year-round counts of atmospheric pollen in a large cosmopolitan area, together with a study of the morphological characteristics of the pollen grains and the botanical flora of the separate districts in the East Bay territory. The flora of San Mateo County is practically the same as that of San Francisco, though the relative amounts of the various species are greater out of the city.

The main difference between these two is in the presence of *Bromus maritimus, Franseria chamissonis,* and *Artemisia pycnocephala* in certain sections of San Francisco. These species are not found in the East Bay and must be taken into definite account in the treatment of patients who live in San Francisco, especially near the ocean. Patients who live or work in the closely built-up section of the city, especially Van Ness Avenue to the Bay line, are exposed to fewer pollens in less concentration than in the western districts, which explains the relief such patients experience during the day in the business districts. This is especially true of patients who live in Marin, Alameda and San Mateo counties and who work in San Francisco during the day. When strong north winds prevail, patients in San Francisco, even in the business districts, are exposed to pollens from Marin County, the flora of which is quite similar to that of San Francisco.

Golden Gate Park is productive of much pollen, especially that of grass which is carried to the residental districts toward which the wind is blowing. The heavy tree growth throughout the park

GROUP 3.—*Weeds and Shrubs*

SCIENTIFIC NAME	COMMON NAME	DURATION OF POLLINATION											Distribution by districts. Numbers indicate relative amounts in each district. 1—Rare; 2—Scarce; 3—Common; 4—Abundant							
		January	February	March	April	May	June	July	August	September	October	November	December	Lake Merced	East of Park	North of Park	South of Park	City Proper	South S. F.	Southeast Section	Golden Gate Park
Typhaceae	(Cat's-Tail Family)																				
Typha latifolia	Common Cat's-Tail					1	1	1						3						2	2
Urticaceae	(Nettle Family)																				
Urtica urens	Small Nettle				1	1	1	1						2						1	1
Polygonaceae	(Buckwheat Family)																				
Polygonum aviculare	*Wire Grass													2	2	2	2	2	2	2	2
Rumex acetosella	Sheep Sorrel				1	1	1	1	1					3	3	3	3				3
Rumex conglomeratus	Green Dock				1	1	1	1	1					2			2				2
Rumex crispus	Curly Dock				1	1	1	1	1					3	2	2	2	2	2	2	2
Rumex occidentalis	Western Dock				1	1	1	1	1					1		2	2		2	2	2
Rumex obtusifolius	Bitter Dock				1	1	1	1	1					1			2				2
Rumex pulcher	Fiddle Dock				1	1	1	1						1	2	2		2		2	2
Chenopodiaceae	(Saltbush Family)																				
Atriplex californica						1	1	1	1	1	1			1			1			1	2
Atriplex coronata							1	1	1	1										2	
Atriplex leucophylla					1	1	1	1	1							2					1
Atriplex patula	Spear Orache							1	1	1						3			3	3	3
Atriplex semibaccata	Australian Saltbush						1	1	1	1				2		1					2
Chenopodium album	White Pigweed					1	1	1	1	1				3	2	3	2	3	3	3	2
Chenopodium murale	Sowbane					1	1	1	1	1				4	3	4	3	4	4	4	3
Roubieva multifida														3	3	4	4	4	4	4	1
Salicornia ambigua	Pickleweed						1	1	1	1					1				3		1
Amaranthaceae	(Amaranth Family)																				
Amaranthus retroflexus	Rough pigweed						1	1	1	1				3	1		1		1	3	2
Plantiginaceae	(Plantago Family)																				
Plantago lanceolata	English Plantain				1	1	1	1	1					3	3	3	2	3	3	3	2
Compositae	(Sunflower Family)																				
1. Astereae	(Aster Tribe)																				
Erigeron canadensis	*Horseweed						1	1	1					3	3	3		4	3	4	2
2. Ambrosieae	(Ragweed Tribe)																				
Franseria bipinnatifida							1	1	1	1							1			1	1
Franseria chamissonis	False Ragweed						1	1	1	1				2		1	1				2
Ambrosia Psilostachya	Western Ragweed									1	1	1		2			2		2	1	1
Xanthium pennsylvanicum	Cocklebur						1	1	1	1				2	1	1	1		2	1	1
Xanthium spinosum	Spiny Clotbur						1	1	1	1				2	2	1	2	2	2	3	2
3. Anthemideae	(Mayweed Tribe)																				
Artemisia californica	Coastal Sagebrush							1	1	1	1			3		3	2				3
Artemisia pycnocephala	Field Sagewort							1	1	1				3		3	4				3
Artemisia vulgaris	Mugwort								1	1	1			3		2	2		2	1	3
Fagaceae																					
Corylus rostrata	Hazelnut	1	1	1										1			1				1
Cornaceae																					
Garrya elliptica	Silk-Tassel Bush		1	1	1									1							1

* Insect pollinated and unimportant in the production of pollenosis.

may act as a barrier to a certain amount of such pollen. No attempt has been made to list all the species of trees present in the park though the predominating ones are listed. Trees in other parts of the city, except in the Presidio and in the Twin Peaks and Forest Hills districts, are practically absent. The acacia trees grow in great profusion, and patients living near the park who are sensitive to acacia would need desensitization to prevent symptoms. The Presidio has many open grass stretches, especially in its southern part, which fact must be kept in mind in the treatment of patients in the region north of the park. The extensive pine growth in the park, and especially in the Presidio, is of minor importance to patients afflicted with pollenosis, since only an occasional individual is sensitive to this pollen. The westerly winds will also blow grass, tree, and weed pollens from the park district into the section east of the park.

409 Fitzhugh Building.

ETHYLENE ANESTHESIA*

By WILLIAM W. HUTCHINSON, M. D.
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THIS paper presents the personal impressions of one anesthetist on this comparatively new anesthetic. In the preparation of this paper two hundred charts of ethylene administration given by the writer, from the records of the Hollywood Clara Barton Memorial Hospital, covering work done during the latter part of 1927, have been studied.

The world is indebted to Luckhart and Carter of the University of Chicago and Brown of Toronto for presenting this wonderful anesthetic agent.

When ethylene was first introduced the literature contained many references to explosions. It

*Read before the Anesthesiology Section of the California Medical Association at its Fifty-Seventh Annual Session, April 30 to May 3, 1928.